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gratitude my great indebtedness to Professor Francis Tangel, director of the Royal Hungarian Institute for Animal Physiology. The unusual generosity with which he placed at my disposal equipment and experience has alone made possible results which otherwise would have been quite beyond my reach.

OTTO C. GLASER

ROYAL HUNGARIAN INSTITUTE  
FOR ANIMAL PHYSIOLOGY,  
BUDAPEST, November 20, 1911

THE AMERICAN ASSOCIATION FOR THE  
ADVANCEMENT OF SCIENCE  
SECTION F

MEETINGS of Section F were held on Wednesday, December 27, the forenoon session for the reading of papers and the afternoon in joint session with the American Psychological Association. The following officers of the section were elected:

*Vice-president and Chairman for next meeting*—Professor William A. Loey.

*Member of Council*—Professor Edwin Linton.

*Member of Sectional Committee for five years*—Professor A. M. Reese.

*Member of General Committee*—Professor T. W. Galloway.

The following abstracts of papers have been received by the secretary of the section:

REESE, ALBERT M.: *Effect of Narcotics upon the Development of Hen's Egg.*

The paper is a preliminary account of the effect of certain reagents (alcohol, ether, chloroform, chlorotone and magnesium chloride) upon the development of the hen's egg. Alcohol was fatal in about 75 per cent. of the experiments; ether in about 35 per cent.; chloroform, chlorotone and magnesium chloride were almost universally fatal, though the fatalities in the last two cases were probably largely due to faulty technique.

LINTON, EDWIN: (1) *The Adult Stage of Dermocystis ctenolabri* Stafford. (2) *Trematode Sporocysts in an Annelid*. (No abstracts of these papers received.)

ROHRER, C. W. G.: *Observations on the Chestnut-worm.*

The chestnut-worm, or grub, is the larval stage of *Balaninus caryatipes*, one of the Curculionidae or nut-weevils. The "worm" winters in the earth, and issues forth in the spring as a small snout-beetle or weevil. A peck of chestnuts may con-

tain as many as 5,838 worms. One chestnut may contain four or even more. The female, in laying eggs, first bores a hole with her snout through the growing chestnut-burr and into the nut. She then drops an egg into this hole, and pushes it to the bottom of the hole with her snout.

REED, H. D.: *The Occurrence of Dermal Poison Glands in the Nematognathi*. (No abstract received.)

SMITH, HUGH M.: *Notice of a Remarkable New Family of Pediculate Fishes.*

Among the fishes collected by the *Albatross* during the 1907-1910 expedition to the Philippine Islands is a deep-water pediculate from the coast of Celebes, which becomes the type of a new species, genus and family.

ROGERS, BURTON R.: *A New Method of Preserving Anatomical Dissecting Material of Large Animals*. (No abstract received.)

SMITH, MIDDLETON: *The Bowhead*.

Description of the whale; of the primitive implements used in its capture; of the method of killing and "cutting in" as practised by the Eskimo; and of the uses of its products.

CLARK, AUSTIN H.: *A Biological Contribution to the Paleogeography of Australia*.

The old continent of Australia included the present Australia, with New Guinea and the Aru Islands to the north and Tasmania to the south. Timor, Timorlaut, the Ki Islands, Ceram, Gilolo and the islands further west, the islands north of New Guinea, New Britain, New Caledonia, Norfolk Island, New Zealand and the islands further north and east have no relationship whatever with Australia, but form part of more or less marked subdivisions of the East Indian region.

The Australian coast line has subsided since the maturity of the true Australian crinoid fauna; this subsidence has been least on the southeast coast, the degree gradually increasing toward the west and with slightly greater rapidity toward the north; on the west coast there is a similar increase in the degree of submergence from the south to the north. The Australian crinoid fauna of to-day is in the midst of one of those faunal changes called by Cuvier a "cataclysm."

JOHNSON, M. E., and TORREY, H. B.: *Control of Color Differentiation in Frog Tadpoles*.

Experiments have shown that the amount of melanin developed in the skin of frog tadpoles varies with the kind rather than with the quantity of food. Among tadpoles growing at the same

rate, those fed on beef liver produced more melanin than those fed on egg yolk. Egg albumen, beef suet and brown beans resembled beef liver in this respect. These results point directly to the presence of substances in the food that exert a specific influence upon melanin formation. It is well known that tyrosin may be oxidized to melanin in the presence of tyrosinase in various organisms. In the experiments, any possible tyrosinase in the food was inactivated by boiling the latter; and tyrosin was present in excess in the tissues. These facts suggest the presence of an *inhibitor* in the egg yolk, an idea supported by numerous experiments in glass. Tyrosin + tyrosinase + egg yolk (digested or undigested) produce little or no color, while tyrosin + tyrosinase + beef liver (digested or undigested) together produce a marked reaction. That the inhibiting factor may exist in the fat content of the food (*i. e.*, lecithin, cholesterolin) is a possibility now under investigation.

WOODRUFF, L. L.: *Observations on the Origin and Sequence of the Protozoan Fauna of Hay Infusions.*

Data derived from the daily observation, for several months, of the sequence of various types of protozoa in a large number of infusions of hay. Attempt to show that there is a more or less regular sequence. Data also on the source of the protozoa observed in infusion.

MACCURDY, H. M.: *Observations on the Reactions of Asterias forbesii to Light.*

Specimens from six to twelve centimeters in diameter respond definitely and are negative in their reactions to sunlight. The first visible effect of light is a characteristic ventralward movement of the affected rays or ray, accompanied by a retraction of the tube feet. This reflex takes place in specimens either with or without the eye spots. The so-called eyes are drawn inward and the surrounding spines close more or less closely over them in bright light, and the tips of the exposed rays are held low. These reflexes may be local or general. They tend to inhibit or counteract exploratory movements, retard current impulses and induce physiological states and relations which require readjustment. The direction of the new movements is influenced by the retarding effect of light and is determined by impulses from the central nervous system. The tube feet extend readily in shade, and toward the shaded side of a ray. Light retards extension movements. The same is true for the tube feet of *Cribella sanguinolenta* and *Thyone briarius*. It thus appears

that the tube feet as well as the surface of the rays are sensitive to light. The outcome of the reaction is a succession of events usually though not invariably the result of the checking of some movements and the freedom of others. A movement becoming effective functionally induces co-operation in adjacent parts not in that condition. A contact stimulus is functionally stronger than the light stimulus, but is influenced by the latter.

GUDGER, E. W.: *Oral Gestation in the Gaff-topsail Cat-fish, Felichthys felis.*

How the eggs are extruded, fertilized and transferred is not known, but when these processes are effected the male incubates them in his mouth not only until they are hatched by the bursting of the shell, but until the yolk has been absorbed and the young are able to care for themselves. The largest number of eggs taken from the mouth of one male was 55. A cement cast of his mouth had a volume of 580 c.c. The volume of an average-sized egg is 3.75 c.c., of the 55 eggs 206.3 c.c., add 25 per cent. for interstices; total space occupied by the 55 eggs equals 258 c.c. This fish was 22 inches long, and of average size. The eggs average 19–20 mm. in diameter, and the young fish at the end of the period of incubation are 85–100 mm. long. The length of this period can not be stated definitely, since it has been found to be impossible artificially to carry the eggs and embryos to the stage of the free-swimming young. However, it is about 80 days. During all this time the nurse does not seem to feed. The large eggs would, if spawned on sandy or shelly bottoms, be quickly destroyed by crabs and by other fish; if laid on a mud bottom (where the breeding fish are caught) their considerable weight would cause them to sink into and be smothered by the mud. The habit is common to estuarine cat-fish in all tropical and warm temperate regions. These data are based on five summers' work at the Beaufort laboratory of the United States Bureau of Fisheries, in which time scores of male fish carrying eggs and larvæ have been captured and autopsied.

PARKER, G. H.: *The Nervous and Non-nervous Reactions of Actinians.* (No abstract received.)

MAST, S. O.: (1) *The Behavior of Fireflies and its Bearing on Certain Theories of Tropisms.* (2) *Seventeen Different Definitions of the Term Tropism as Applied to Reactions in Organisms.* (No abstract received.)

ESTERLY, C. O.: *The "Oil Fly" of California, Psilopa petrolei.*

The larvæ live in crude oil in incredible numbers. The eggs seem to be deposited outside the oil and the larvæ enter the oil as soon as they hatch. The maggots float in the oil whether it is of the heaviest or lightest specific gravity. All the crude oils observed are lighter than water, but the larvæ sink in water. Even when the animals are motionless in crude oil, they remain on the surface with only the breathing tube visible. If the larvæ are put into such products of petroleum as distillate or kerosene, or such substances as olive oil, they live for from 24 to 48 hours. They do not float in these fluids and it seems likely that the chemical nature of the substances is not the only unfavorable condition. The maggots swarm about the bodies of animals like moths or caterpillars caught in the oil and doubtless feed on them. Yet if the larvæ are kept in oil taken direct from the pump or in that filtered through asbestos, they seem to do equally as well, even to pupating. It seems unlikely that organic particles could be present in such oil, and it is an interesting problem whether the animals can obtain nutriment directly from petroleum. Pupation takes place very readily in the laboratory. The proportion of pupæ formed from larvæ kept in fresh pumped or filtered oil is as large as that in oil taken from pools around tanks or wells. The adults and larvæ do not seem to be phototropic, yet the pupæ have temporary positive phototropism. The paper included a description of larval movements.

MAURICE A. BIGELOW,  
*Secretary of Section F*

#### THE AMERICAN PHYSIOLOGICAL SOCIETY

THE twenty-fourth annual meeting was held in Baltimore and Washington, December 26-29, 1911. Two business sessions and five scientific sessions were held in Baltimore. Two of the scientific sessions were joint meetings with the Biochemical and the Pharmaceutical Societies.

An unusual number of papers and demonstrations—in all sixty-seven—were presented and discussed, and the sessions were well attended, eighty-six of the society's one hundred and ninety members being present at the meeting.

At the first session in Baltimore President Meltzer made a brief and appropriate reference to the late Professor H. P. Bowditch, one of the founders of the society, at the conclusion of which the members present arose and remained standing for one minute as a token of respect to the memory of Dr. Bowditch. This was followed by the

reading of a memorial address on Professor Bowditch by W. B. Cannon.

The following papers and demonstrations were presented at the Baltimore sessions:

W. W. Osterhaut: The Effect of Anesthetics on Protoplasmic Permeability.

F. S. Lee and A. M. Guenther: Some of the General Physiological Properties of Diaphragm Muscle.

J. Auer: The Action of the Digitalis Group upon the Heart and its Similarity to Cardiac Anaphylaxis.

P. E. Howe (by invitation) and P. B. Hawk: A Comparison of the Data from Two Fasts Each Exceeding One Hundred Days in Length and made upon the same Subject.

J. Erlanger: Observations on the Physiology of Purkinje Tissue.

W. B. Howell: Antithrombin.

W. J. Meek: Relation of the Liver to Fibrinogen Formation.

Th. Hough: The Influence of Different Degrees of Muscular Activity on the Alveolar Tension of Oxygen and Carbon Dioxid.

Y. Henderson: A Brief Report upon the Pikes Peak Expedition.

A. S. Loevenhart: A Contribution to the Theory of the Respiration.

W. T. Porter: The Vaso-motor Nerves of the Heart.

W. T. Porter: Remarks on the Relation of the Phrenic Nerve to the Spinal Respiratory Cells.

T. S. Githens and S. J. Meltzer: The Effect of the Removal of the Heart upon Morphinized Frogs.

T. Sollmann and P. J. Hanzelik (by invitation): Post-mortem Absorption by the Lymph Vessels.

Y. Henderson: Some New Respiration Apparatus.

W. Salant: A Modified Langendorff Apparatus for Perfusion of Isolated Heart.

G. W. Fitz: A Perfected Model of the Shadow Pupillometer.

W. T. Porter: An Improved Membrane Manometer.

A. J. Carlson: A Method for Studying the Movements and Tonus of the Empty Digestive Tract by the Means of the X-ray.

C. C. Guthrie: Some New Apparatus.

H. Cushing: The Hemodynamic Action of the Cerebrospinal Fluid.

J. R. Murlin and H. C. Bailey: The Urine of Late Pregnancy and the Puerperium.

C. W. Greene: The Storage of Fat in the Sal-